DOCUMENT RESUME

ED 144 456 HE 009 240

AUTHOR Rolf, Carol; Strenglein, Denise
TITLE A Study of Engineering Students.
INSTITUTION University of South Florida, Tampa. Office of Institutional Research.
PUB DATE Jul 77
NOTE 36p.; Not available in hard copy due to marginal legibility of original document

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS *Academic Achievement; Black Students; College Freshmen; *Comparative Analysis; Dropouts; *Engineering Education; *Grade Point Average; Grades (Scholastic); Higher Education; Institutional Research; Statistical Data; *Student Characteristics; Tables (Data); *Transfer Students; Undergraduate Students
IDENTIFIERS *University of South Florida

ABSTRACT

The undergraduate student body in the College of Engineering at the University of South Florida was studied to determine if there were significant differences in the grade-point ratios (GPRs), withdrawals, and forgivenesses of students in several categories. (The foregiveness policy permits a student to repeat a course and have that grade computed in his GPR in place of the original.) The categories are: first-time in college students beginning in engineering programs (FTIC); first-time in college students beginning in nonengineering programs (FTIC- other); Florida public junior college transfers with associate degrees (AA Tranfers); other Florida transfers; out-of-state transfers; and all other students. Results show that the GPR of FTIC was significantly higher than the GPR of AA Transfers, but the GPR of Other Transfers was not significantly different from the GPR of FTIC or AA Transfers. On Withdrawals and Forgivenesses, FTIC did somewhat better than AA Transfers, but the differences were not consistently significant. Other Transfers were not consistently different from FTIC or AA Transfers. Graphs and tables are included. (Author/LBH)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED144456

A STUDY OF ENGINEERING STUDENTS

BEST COPY AVAILABLE

by

CAROL ROLF

in collaboration with

DENISE STRENGLEIN

HE009240

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

UNIVERSITY OF SOUTH FLORIDA
OFFICE OF INSTITUTIONAL RESEARCH
July, 1977

A STUDY OF ENGINEERING STUDENTS

Objectives

At the request of Dr. Rudolf Henning, Associate Dean, College of Engineering, and Dr. Frank Spain, Director, Community College Relations, the Office of Institutional Research conducted a study of the undergraduate student body in the College of Engineering. The initial objective of the study was to determine if there were significant differences in the grade point ratios (GPR's), withdrawals and forgivenesses[1/] of students who began at USF as:

1) First-time in college students beginning in engineering programs (FTIC);
2) First-time in college students beginning in non-engineering programs (FTIC other);
3) Florida public Junior College transfers with associate degrees (AA Transfers);
4) Other Florida transfers;
5) Out-of-state transfers; and,
6) All other students.

However, the data base established to complete the study contained such a treasure of information that the initial comparative analysis was expanded to include:

1) a descriptive analysis of the total engineering undergraduate student body;
2) a descriptive analysis of the female undergraduate engineering student body; and,
3) a descriptive analysis of the black undergraduate engineering student body.

Methodology

A data base containing the records of all undergraduate students considered active by the College of Engineering in Quarter III, 1974 was established. This group of students dated back far enough that a meaningful analysis of performance at USF could be made. It also included all freshmen who entered in the Fall of 1973. Finally, it included all students who at that time had declared engineering as their major in the Engineering College - regardless of their University classification status which at that time was ill defined between Engineering and DUS.

A computer tape was created for these students by integrating the data on the Enrollment and the Permanent Record files. From this computer tape, a data base was created containing information through Quarter I, 1976 for each student:

1. Social Security Number
2. Matriculation Date
3. Sex
4. Race
5. Date of Birth
6. Program
7. Type of Student; e.g., FTIC, AA Transfer, etc.
8. GPR as Undergraduate
9. Ratio of undergraduate hours withdrawn to undergraduate hours attempted
10. Ratio of undergraduate hours forgiven to undergraduate hours attempted
11. GPR in upper level engineering courses
12. Ratio of upper level engineering hours withdrawn to upper level engineering hours attempted

1/ See page 3 for definitions of the three measures.

13. Ratio of upper level engineering hours forgiven to upper level engineering hours attempted
14. GPR as Junior and Senior
15. Ratio of hours withdrawn as Junior and Senior to hours attempted as Junior and Senior
16. Ratio of hours forgiven as Junior and Senior to hours attempted as Junior and Senior

The study is presented in four parts:

Part I, Descriptive Analysis of the Total Undergraduate Engineering Student Body, presents data for all undergraduate engineering students who were active in Quarter III, 1974. In this analysis it is assumed that Quarter III, 1974 is a typical quarter and its students represent the usual mix in any given quarter. This assumption may not hold true for Summer Quarter.

Part II, Descriptive Analysis of Female Undergraduate Engineering Students, presents data for female students who were active undergraduate engineering students in Quarter III, 1974. Due to the small number of female students enrolled, a meaningful comparison with the male population was not possible.

Part III, Descriptive Analysis of Black Undergraduate Engineering Students, presents data for black students active in undergraduate engineering programs in Quarter III, 1974. Again, due to the small number of blacks, a meaningful comparison to the non-black population was not possible.

Part IV, Comparative Analysis of Undergraduate Engineering Students by Type, presents data by type and compares GPR, withdrawals and forgivenesses among the types. A comparative analysis of the original six groups was not possible due to the disparate group sizes. Therefore, the groups were combined into three types:

1) FTIC Engineering (group 1) and FTIC Other (group 2) into "FTIC" (N = 368)
2) Florida public Junior College transfers with associate degrees (group 3) into "AA TRANSFERS" (N = 246)
3) Other Florida Transfers (group 4) and Out-of-state Transfers (group 5) into "OTHER TRANSFERS" (N = 253)

Students who did not fall into any of the three categories (group 6, All Other Students) were excluded (N = 21).

The measures under consideration (GPR, withdrawals and forgivenesses) are directly related to the number of hours attempted. Several procedures were followed to adjust somewhat for the differences among the three types that would occur due to the differences in hours attempted. First, cumulative undergraduate measures were not used since undergraduate work for FTIC students would potentially include four years of work versus two years for the average transfer student. Secondly, the measures were computed for upper level work in two ways: for upper level engineering courses regardless of level of the student; and, for courses taken as an upper level student regardless of the level of the course. Thirdly, withdrawals and forgivenesses were expressed as a ratio to hours attempted. Hours attempted do not normally include withdrawn hours but for purposes of this study, hours attempted were adjusted to include hours withdrawn.

To determine if there were significant differences among the three types of students, the following statistics were used:

1) Regression analysis with effect coding of group membership was utilized for GPR's. When the overall F was significant, the Scheffe' test was used to do pairwise comparisons.

2) Chi-square analysis was used for the remaining factors. The non-normal distributions, large number of zero scores and unequal N's made chi-square the most meaningful statistic.

The .05 level of confidence was used for all items except for the Withdrawal and Forgiveness Ratios. The .02 level was used for these items because the groups were compared two by two.

It must be noted that the comparative analysis establishes the existence or non-existence of significant differences among the types of students. However, it does not attempt to determine why any differences exist.

The measures were not combined into one composite index of comparison because a non-parametric multivariate instrument was not available in the statistical packages.

Definitions

Grade Point Ratio - The University has a four-point system of grading used in computing grade point ratio (A=4 grade points, B=3, C=2, D=1, F=0.) The grade point ratio (abbreviated GPR throughout this report) is computed by dividing the total number of quality points by the total hours attempted at the University of South Florida. The total quality points are figured by multiplying the number of credits assigned to each course by the quality point value of the grade given. Grades of S, U, I, Z, and grades which are followed by an "R" (indicating a repeat) are subtracted from the total hours attempted.

Withdrawals - The withdrawal policy permits a student to withdraw from a course in the first six weeks of class. The withdrawals made after the regular "drop-add" period (first week of classes) are recorded on the students record and are considered in the withdrawal measures.

Forgiveness - The forgiveness policy permits an undergraduate to repeat a course and have the repeated grade computed in his/her GPR in place of the original grade providing the repeat grade is D or higher. Grades signified on the students' record as being "forgiven" are included in the forgiveness measures.

Results

PART I - ALL STUDENTS

In Quarter III, 1974, there were 888 undergraduate engineering students registered. Of these, 368 (42%) began as FTIC, 499 (56%) were transfer students and 21 (2%) were both FTIC and transfers (began as FTIC, dropped out, went to another institution then transferred back to USF).

246 or about one-half of the 499 transfer students were AA degree holders from Florida public Junior Colleges (hereafter called AA transfers), 125 (25%) transferred to USF from other Florida institutions and 128 (26%) were transfers from out-of-state institutions. Of the total undergraduate engineering population, AA transfers represented 28% and other Florida transfers and out-of-state transfers represented 14% each.

747 (84%) of the students entered the BS in Engineering program, 37 (4%) entered the BS in Engineering Science program and 104 (12%) entered the Bachelor of Engineering Technology program.

The average age was 24 with a minimum age of 18 and a maximum of 51.

There were 76 minority students comprising 8% of the total undergraduate engineering student body. The largest minority group was Hispanic (35, 4%) followed by Black (21, 2%) and Asian (20, 2%).

There were 849 males and 39 females representing 96% and 4% of the population respectively.

812 (92%) of the students first entered USF in the 1970's. Seventy-six students (8%) entered prior to 1970.

In undergraduate courses:

All of the students in the population (888) took undergraduate courses.

The mean cumulative GPR was 2.665.

737 (83%) of the students withdrew from at least one course. Of the students using the withdrawal, the average student withdrew from 12% of undergraduate hours attempted.

432 students (49%) used the forgiveness policy at least once. Of the students using the policy, the average student was forgiven 7% of undergraduate hours attempted.

In upper level engineering courses:

770 (87%) of the students took upper level engineering courses.

The mean cumulative GPR was 2.639.

512 (66%) of these students withdrew from at least one upper level engineering course. The average student withdrew from 16% of all upper level engineering hours attempted.

261 (34%) of the students utilized the forgiveness policy at least once in upper level engineering courses. For these students, an average of 12% of their attempted hours were forgiven.

In courses taken as Juniors and/or Seniors:

796 (90%) of the students took courses as Juniors and/or Seniors.

The mean cumulative GPR was 2.743.

603 (76%) of these students withdrew from at least one course. Of these students, the average withdrew from 12% of the hours attempted.

306 (38%) of the students used the forgiveness policy one or more times. The average student who used the forgiveness policy, used it for 8% of the hours attempted.

UNIVERSITY OF SOUTH FLORIDA
OFFICE OF INSTITUTIONAL RESEARCH

PART I - ALL STUDENTS

A. TYPE AT ENTRY

Type	N	%
FTIC Engineering	313	35.2
FTIC Other	55	6.2
SUB-TOTAL FTIC	368	41.4
Fla. J.C. AA Transfer	246	27.7
Other Fla. Transfer	125	14.1
SUB-TOTAL Fla. Transfer	371	41.8
Out of State Transfer	128	14.4
Other	21	2.4
TOTAL	888	100.0

B. PROGRAM

Program	N	%
BS in Engineering	747	84.1
BS in Engineering Science	37	4.2
Bachelor of Engineering Tech.	104	11.7
TOTAL	888	100.0

C. AGE (In 1974)

Age	N	%
18	12	1.4
19 - 22	424	47.9
23 - 26	226	25.5
27 - 30	156	17.6
31 - 34	46	5.2
35 - 39	11	1.2
40 & over	11	1.2
SUB-TOTAL	886	100.0
Not Given	2	
TOTAL	888	
Median	23	
Mean	24	
St. Dev.	4.6	
Minimum	18	
Maximum	51	

D. RACE

Race	N	%
Black	21	2.4
Asian	20	2.3
Hispanic	35	3.9
Other	812	91.4
TOTAL	888	100.0

E. DATE OF ENTRY

Year	N	%
1963	3	.3
1964	3	.3
1965	7	.8
1966	10	1.1
1967	7	.8
1968	14	1.6
1969	32	3.6
1970	75	8.5
1971	104	11.7
1972	231	26.0
1973	308	34.7
1974	94	10.6
TOTAL	888	100.0

F. SEX

Sex	N	%
Male	849	95.6
Female	39	4.4
TOTAL	888	100.0

PART I - ALL STUDENTS (Cont'd)

G. GPR

GPR	Undergrad N	Undergrad %	In UL Engineering Courses N	In UL Engineering Courses %	As Jr. & Sr. N	As Jr. & Sr. %
0.000 - 0.500	8	.9	13	1.7	3	.4
0.501 - 1.000	7	.8	21	2.7	5	.6
1.001 - 1.500	26	2.9	33	4.3	22	2.8
1.501 - 2.000	58	6.5	83	10.8	56	7.0
2.001 - 2.500	247	27.8	151	19.6	193	24.2
2.501 - 3.000	261	29.4	211	27.4	225	28.3
3.001 - 3.500	199	22.4	153	19.9	192	24.1
3.501 - 4.000	92	9.3	105	13.6	100	12.6
SUB-TOTAL	888	100.0	770	100.0	796	100.0
N/A *	--		118		92	
TOTAL	888		888		888	
Median	2.665		2.700		2.755	
Mean	2.665		2.639		2.743	
S. D.	.653		.789		.638	
Minimum	.000		.000		.000	
Maximum	4.000		4.000		4.000	

H. RATIO OF HOURS WITHDRAWN TO HOURS ATTEMPTED

RATIO	In Courses taken as Undergrad N	In Courses taken as Undergrad %	In UL Engineering Courses N	In UL Engineering Courses %	In Courses taken as Jr. & Sr. N	In Courses taken as Jr. & Sr. %
0	151	17.0	258	33.5	192	24.1
0.1 - 5.0	205	23.1	123	16.0	165	20.8
5.1 - 10.0	226	25.4	126	16.3	174	21.9
10.1 - 15.0	109	12.3	73	9.5	100	12.6
15.1 - 20.0	81	9.1	56	7.3	62	7.8
20.1 - 25.0	40	4.5	33	4.3	32	4.0
over 25.0	76	8.6	101	13.1	70	8.8
SUB-TOTAL	888	100.0	770	100.0	795	100.0
N/A *	--		118		93	
TOTAL	888		888		888	
All Students						
Median	6.7		5.2		6.0	
Mean	9.9		10.5		9.3	
S. D.	11.1		14.5		11.1	
Minimum	0.0		0.0		0.0	
Maximum	76.5		85.0		69.2	
Students using Withdrawal						
Median	8.4		10.5		8.5	
Mean	11.9		15.8		12.2	
S. D.	11.2		15.2		11.3	

I. RATIO OF HOURS FORGIVEN TO HOURS ATTEMPTED

RATIO	In Courses taken as Undergrad N	In Courses taken as Undergrad %	In UL Engineering Courses N	In UL Engineering Courses %	In Courses taken as Jr. & Sr. N	In Courses taken as Jr. & Sr. %
0	456	51.4	509	66.1	489	61.5
0.1 - 5.0	186	20.9	69	9.0	125	15.7
5.1 - 10.0	148	16.7	75	9.7	91	11.5
10.1 - 15.0	64	7.2	50	6.5	56	7.0
over 15.0	34	3.8	67	8.7	34	4.3
SUB-TOTAL	888	100.0	770	100.0	795	100.0
N/A *	--		118		93	
TOTAL	888	100.0	888		888	
All Students						
Median	0.0		0.0		0.0	
Mean	3.5		3.9		3.1	
S. D.	4.9		7.8		5.1	
Minimum	0.0		0.0		0.0	
Maximum	27.3		52.2		29.5	
Students using Forgiveness						
Median	6.0		9.2		6.5	
Mean	7.1		11.6		8.0	
S. D.	4.8		9.5		5.3	

* Not applicable - Students did not take courses in respective categories.

PART II - FEMALE STUDENTS

In Quarter III, 1974, there were 39 female undergraduate engineering students comprising 4% of the total population.

A little over one-half or 22 of these students began at USF as FTIC students. 14 (36%) of the females were transfer students from Florida institutions and three students (8%) were from out-of-state institutions and "other."

It is difficult to draw any comparisons between the sexes because the female population was so small. However, it does appear that FTIC female students wait several quarters before declaring an Engineering major, while male students are more apt to go immediately into engineering.

Most (90%) of the female students entered the BS in Engineering program.

The average age of the female students was 23 with a minimum of 18 and a maximum of 50.

Two of female students were ethnic minority students.

In undergraduate courses:

All of the females (39) took undergraduate courses.

The mean GPR was 2.832.

90% of the females withdrew from at least one course. Of these students, the average withdrew from 11% of her undergraduate hours attempted.

Eighteen or 54% of the females were forgiven an average of 6% of their hours attempted.

In upper level engineering courses:

29 (74%) of the females took upper level engineering courses.

The mean GPR was 2.625.

62% used withdrawal at least once. Of those who used it, the average student withdrew from 13% of the upper level engineering hours she attempted.

28% of the females used the forgiveness policy. Hours forgiven averaged 10% of the hours attempted.

In courses taken as Juniors and/or Seniors:

34 (87%) of the females took courses as Juniors and/or Seniors.

The mean cumulative GPR was 2.708.

73% of the students withdrew from at least one course. Of the students who withdrew, the average student withdrew from 14% of the hours she attempted.

38% of the students used the forgiveness policy. Of the students utilizing the forgiveness policy, hours forgiven averaged 7% of the hours attempted.

UNIVERSITY OF SOUTH FLORIDA
OFFICE OF INSTITUTIONAL RESEARCH

PART II - FEMALE STUDENTS

A. TYPE AT ENTRY

Type	N	%
FTIC Engineering	8	20.5
FTIC Other	14	35.9
SUB-TOTAL FTIC	22	56.4
Fla. J.C. AA Transfer	11	28.2
Other Fla. Transfer	3	7.7
SUB-TOTAL Fla. Transfer	14	35.9
Out of State Transfer	2	5.1
Other	1	2.6
TOTAL	39	100.0

B. PROGRAM

Program	N	%
BS in Engineering	35	89.8
BS in Engineering Science	2	5.1
Bachelor of Engineering Tech.	2	5.1
TOTAL	39	100.0

C. AGE (In 1974)

Age	N	%
18	1	2.6
19 - 22	29	74.3
23 - 26	3	7.7
27 - 30	3	7.7
31 - 34	1	2.6
35 - 39	--	--
40 & over	2	5.1
TOTAL	39	100.0
Median	21	
Mean	23	
St. Dev.	6.3	
Minimum	18	
Maximum	50	

D. RACE

Race	N	%
Black	1	2.6
Asian	--	--
Hispanic	1	2.6
Other	37	94.8
TOTAL	39	100.0

E. DATE OF ENTRY

Year	N	%
1969	1	2.6
1970	3	7.7
1971	7	17.9
1972	9	23.1
1973	15	38.4
1974	4	10.3
TOTAL	39	100.0

PART II - FEMALE STUDENTS (Cont'd)

F. GPR

GPR	Undergrad N	Undergrad %	In UL Engineering Courses N	In UL Engineering Courses %	As Jr. & Sr. N	As Jr. & Sr. %
0.000 - 0.500	--	--	--	--	--	--
0.501 - 1.000	--	--	1	3.5	--	--
1.001 - 1.500	--	--	1	3.5	1	2.9
1.501 - 2.000	2	5.1	4	13.8	3	8.8
2.001 - 2.500	7	17.9	5	17.2	10	29.4
2.501 - 3.000	14	35.9	7	24.1	4	11.8
3.001 - 3.500	12	30.8	9	31.0	14	41.2
3.501 - 4.000	4	10.3	2	6.9	2	5.9
SUB-TOTAL	39	100.0	29	100.0	34	100.0
N/A *	--		10		5	
TOTAL	39		39		39	
Median	2.731		2.679		2.733	
Mean	2.832		2.625		2.708	
S. D.	.543		.724		.615	
Minimum	1.615		.750		1.294	
Maximum	4.000		3.781		3.817	

G. RATIO OF HOURS WITHDRAWN TO HOURS ATTEMPTED

RATIO	In Courses taken as Undergrad N	In Courses taken as Undergrad %	In UL Engineering Courses N	In UL Engineering Courses %	In Courses taken as Jr. & Sr. N	In Courses taken as Jr. & Sr. %
0	4	10.3	11	37.9	9	26.5
0.1 - 5.0	10	25.6	5	17.3	5	14.7
5.1 - 10.0	8	20.5	3	10.3	9	26.5
10.1 - 15.0	6	15.4	2	6.9	1	2.9
15.1 - 20.0	8	20.5	5	17.3	5	14.7
20.1 - 25.0	2	5.1	1	3.4	2	5.9
over 25.0	1	2.6	2	6.9	3	8.8
SUB-TOTAL	39	100.0	29	100.0	34	100.0
N/A *	--		10		5	
TOTAL	39		39		39	
All Students						
Median	8.2		4.5		6.6	
Mean	9.8		7.8		9.9	
S. D.	7.6		9.6		11.6	
Minimum	0.0		0.0		0.0	
Maximum	29.3		31.3		48.3	
Students using Withdrawal						
Median	9.2		11.1		9.3	
Mean	10.9		12.6		13.5	
S. D.	7.2		9.4		11.6	

H. RATIO OF HOURS FORGIVEN TO HOURS ATTEMPTED

RATIO	In Courses taken as Undergrad N	In Courses taken as Undergrad %	In UL Engineering Courses N	In UL Engineering Courses %	In Courses taken as Jr. & Sr. N	In Courses taken as Jr. & Sr. %
0	18	46.1	21	72.4	21	61.8
0.1 - 5.0	12	30.8	2	6.9	6	17.6
5.1 - 10.0	6	15.4	3	10.3	3	8.8
10.1 - 15.0	3	7.7	1	3.5	4	11.8
over 15.0	--	--	2	6.9	5	--
SUB-TOTAL	39	100.0	29	100.0	39	100.0
N/A *	--		10		5	
TOTAL	39		39		39	
All Students						
Median	1.8		1.0		0.0	
Mean	2.9		2.7		2.8	
S. D.	3.7		5.4		4.6	
Minimum	0.0		0.0		0.0	
Maximum	13.6		20.0		14.7	
Students using Forgiveness						
Median	4.4		7.8		5.7	
Mean	5.5		9.7		7.4	
S. D.	3.5		6.2		4.5	

* Not applicable - Students did not take courses in respective categories.

PART III - BLACK STUDENTS

There were 21 black students comprising 2% of the undergraduate engineering student body in Quarter III, 1974.

A little over one-half of the students were Florida transfers; one-third were FTIC and 14% were transfers from out-of-state institutions.

12 students (57%) went into BS in Engineering program, 8 (38%) went into Bachelor of Engineering Technology and one student entered the BS in Engineering Science program.

It appears that the proportion of black students entering the Engineering Technology program was higher than the proportion of white students entering this program. It also appears that the proportion of black students transferring from Florida Junior Colleges with AA degrees was higher than the proportion of white students in this category. However, due to the small number of black students, comparisons are questionnable as it is not possible to determine if these differences are statistically significant.

In undergraduate courses:

All of the black students (21) took undergraduate courses.

The mean cumulative GPR was 2.146.

20 (96%) of the students withdrew from at least one course. Of these, the average student withdrew from 20% of undergraduate hours attempted.

13 (62%) of the students used the forgiveness policy at least once. Of these, the average student was forgiven 8% of undergraduate hours attempted.

In upper level engineering courses:

17 (81%) of the black students took upper level engineering hours attempted.

The mean cumulative GPR was 2.110.

14 (82%) of these students used the withdrawal one or more times. Hours withdrawn averaged 17% of the upper level engineering hours attempted.

8 (47%) of the students were forgiven an average of 11% of the hours they attempted.

In courses taken as Juniors and/or Seniors:

19 (90%) of the students took courses as Juniors and/or Seniors.

The mean cumulative GPR was 2.304.

18 (95%) of the students withdrew from one or more courses. Of these, the average student withdrew from 17% of the hours attempted.

9 (47%) of the students were forgiven an average of 7% of their attempted hours.

PART III - BLACK STUDENTS

A. TYPE AT ENTRY

Type	N	%
FTIC Engineering	7	33.3
FTIC Other	--	--
SUB-TOTAL FTIC		33.3
Fla. J.C. AA Transfer	8	38.1
Other Fla. Transfer	3	14.3
SUB-TOTAL Fla. Transfer	11	52.4
Out of State Transfer	3	14.3
Other	--	--
TOTAL	21	100.0

B. PROGRAM

Program	N	%
BS in Engineering	12	57.1
BS in Engineering Science	1	4.8
Bachelor of Engineering Tech.	8	38.1
TOTAL	21	100.0

C. AGE (In 1974)

Age	N	%
18	--	--
19 - 22	10	50.0
23 - 26	6	30.0
27 - 30	1	5.0
31 - 34	3	15.0
35 - 39	--	--
40 & over	--	--
SUB-TOTAL	20	100.0
Not Given	1	
TOTAL	21	
Median	22	
Mean	22	
S. D.	6.1	
Minimum	31	
Maximum	19	

D. SEX

Sex	N	%
Male	20	95.2
Female	1	4.8
TOTAL	21	100.0

E. DATE OF ENTRY

Year	N	%
1970	1	4.8
1971	2	9.5
1972	8	38.1
1973	9	42.8
1974	1	4.8
TOTAL	21	100.0

PART III - BLACK STUDENTS (Cont'd)

F. GPR

GPR	Undergrad N	Undergrad %	In UL Engineering Courses N	In UL Engineering Courses %	As Jr. & Sr. N	As Jr. & Sr. %
0.000 - 0.500	2	9.5	1	5.9	1	5.3
0.501 - 1.000	--	--	2	11.8	--	--
1.001 - 1.500	1	4.8	1	5.9	1	5.3
1.501 - 2.000	5	23.8	4	23.5	5	26.3
2.001 - 2.500	6	28.6	2	11.8	5	26.3
2.501 - 3.000	4	19.0	4	23.5	4	21.0
3.001 - 3.500	2	9.5	2	11.8	2	10.5
3.501 - 4.000	1	4.8	1	5.9	1	5.3
SUB-TOTAL	21	100.0	17	100.0	19	100.0
N/A *	--		4		2	
TOTAL	21		21		21	
Median	2.226		2.054		2.243	
Mean	2.146		2.110		2.304	
S. D.	.914		.945		.813	
Minimum	.000		.000		.000	
Maximum	3.595		3.595		3.578	

G. RATIO OF HOURS WITHDRAWN TO HOURS ATTEMPTED

RATIO	In Courses taken as Undergrad N	In Courses taken as Undergrad %	In UL Engineering Courses N	In UL Engineering Courses %	In Courses taken as Jr. & Sr. N	In Courses taken as Jr. & Sr. %
0	1	4.8	3	17.6	1	5.3
0.1 - 5.0	3	14.3	--	--	2	10.5
5.1 - 10.0	5	23.8	5	29.4	6	31.6
10.1 - 15.0	3	14.3	2	11.8	2	10.5
15.1 - 20.0	4	19.0	3	17.6	3	15.8
20.1 - 25.0	--	--	2	11.8	--	--
over 25.0	5	23.8	2	11.8	5	26.3
SUB-TOTAL	21	100.0	17	100.0	19	100.0
N/A *	--		4		2	
TOTAL	21		21		21	
All Students						
Median	12.6		11.6		10.6	
Mean	18.7		14.2		16.4	
S. D.	20.2		13.9		16.2	
Minimum	0.0		0.0		0.0	
Maximum	76.5		57.1		69.2	
Students using Withdrawal						
Median	12.7		11.9		10.7	
Mean	19.5		17.2		17.3	
S. D.	20.2		13.4		16.2	

H. RATIO OF HOURS FORGIVEN TO HOURS ATTEMPTED

RATIO	In Courses taken as Undergrad N	In Courses taken as Undergrad %	In UL Engineering Courses N	In UL Engineering Courses %	In Courses taken as Jr. & Sr. N	In Courses taken as Jr. & Sr. %
0	8	38.1	9	52.8	10	52.6
0.1 - 5.0	4	19.0	2	11.8	4	21.1
5.1 - 10.0	3	14.3	2	11.8	2	10.5
10.1 - 15.0	5	23.8	2	11.8	2	10.5
over 15.0	1	4.8	2	11.8	1	5.3
SUB-TOTAL	21	100.0	17	100.0	19	100.0
N/A *	--		4		2	
TOTAL	21		21		21	
All Students						
Median	3.3		.4		.1	
Mean	5.2		5.0		3.5	
S. D.	5.7		7.3		5.4	
Minimum	0.0		0.0		0.0	
Maximum	16.3		21.0		19.2	
Students using Forgiveness						
Median	6.5		8.2		5.3	
Mean	8.4		10.7		7.4	
S. D.	5.1		7.1		5.7	

* Not applicable - Students did not take courses in respective categories.

PART IV - COMPARATIVE ANALYSIS BY TYPE - FTIC, AA TRANSFERS AND OTHER TRANSFERS

Of the 888 undergraduate students active in Quarter III, 1974, 867 (98%) of the students were classified as one of the following three types of students:

FTIC = Students who began as Freshmen at USF. Includes students who entered as engineering students and those who entered as non-engineering students (mainly DUS).

AA TRANSFERS = Students who transferred to USF with an associate degree from a Florida public community/junior college.

OTHER TRANSFERS = All other transfer students. Includes Junior College or Community College transfers without associate degrees, transfers from out-of-state institutions, Florida four-year institutions and Florida upper level institutions.

There were 368 (43%) FTIC students; 246 (28%) AA TRANSFERS and 253 (29%) OTHER TRANSFERS.

The mean ages respectively were 21, 26 and 26. Chi-square analysis indicates that there were significant differences in the ages among the types.

About 10% of the students in each group were minority students. Blacks comprised 3% of the AA TRANSFER group and 2% each in the FTIC and OTHER TRANSFER categories. The proportion of Hispanic students was greater for FTIC (5%) than for AA TRANSFERS (2%) and OTHER TRANSFERS (4%). Chi-square analysis indicates that these differences were not significant.

The proportion of females was greater for FTIC (6%) versus 5% and 2% for AA TRANSFERS and OTHER TRANSFERS respectively. Again, these differences were not statistically significant based on chi-square.

In upper level engineering courses:

753 (87%) of the students took upper level engineering courses.

The mean cumulative GPR was 2.763 for FTIC; 2.503 for AA TRANSFERS; and, 2.623 for OTHER TRANSFERS. Regression analysis indicates that the GPR of FTIC students was significantly higher than the GPR of AA TRANSFERS, but the GPR of OTHER TRANSFERS was not significantly different.

About two-thirds of the students in each group withdrew from at least one course. The withdrawal ratio was not significantly different among the groups.

A larger proportion of AA TRANSFERS (40%) used the forgiveness policy than FTIC (29%) and OTHER TRANSFERS (34%). The proportion of students who used the forgiveness policy and the degree to which it was used was significantly higher for AA TRANSFERS than for OTHER TRANSFERS. This was the only comparison that showed a significant difference.

In courses taken as Juniors and/or Seniors:

779 (90%) of the students took courses as Juniors and/or Seniors.

The mean cumulative GPR was 2.840 for FTIC; 2.648 for AA TRANSFERS; and, 2.722 for OTHER TRANSFERS. The GPR for FTIC was significantly higher than for AA TRANSERS. The GPR for OTHER TRANSFERS was not significantly different.

The mean ratio of hours withdrawn to hours attempted was 8% for FTIC, 11% for AA TRANSFERS and 9% for OTHER TRANSFERS. Chi-square analysis showed no statistically significant difference among the groups.

There was a significant difference in the proportion of students using the forgiveness policy and the degree to which they used it between FTIC and AA TRANSFERS. Almost one-half of the AA TRANSFERS used the forgiveness policy with a mean ratio of 4.4% compared to only 30% for the FTIC's with a mean ratio of 2.3%. OTHER TRANSFERS were not significantly different.

Overall conclusions

Gradepoint ratio:

The GPR of FTIC was significantly higher than the GPR of AA TRANSFERS.

The GPR of OTHER TRANSFERS was not significantly different than the GPR of FTIC or AA TRANSFERS.

Withdrawals and Forgivenesses:

FTIC did somewhat better than AA TRANSFERS; but, the differences were not consistently significant.

OTHER TRANSFERS were not consistently different than FTIC or AA TRANSFERS.

Further study is needed to determine why there is difference in the academic records of FTIC and AA TRANSFERS. Some of the variables that may contribute to the differences include age, intelligence, hours attempted and length of time at USF, socio-economic background, degree program, and/or academic preparation in the first two years of college.

PART IV - COMPARATIVE ANALYSIS BY TYPE

A. PROGRAM

Program	FTIC N	FTIC %	AA TRANS N	AA TRANS %	OTHER TRANS N	OTHER TRANS %
BS in Engineering	344	93.5	165	67.1	222	87.8
BS in Engineering Science	21	5.7	2	.8	13	5.1
Bachelor of Engineering Tech.	3	.8	79	32.1	18	7.1
TOTAL	368	100.0	246	100.0	253	100.0

B. AGE

Age	FTIC N	FTIC %	AA TRANS N	AA TRANS %	OTHER TRANS N	OTHER TRANS %
18	12	3.3	--	--	--	--
19 - 22	280	76.1	61	25.0	77	30.4
23 - 26	58	15.8	89	36.5	75	29.6
27 - 30	16	4.3	61	25.0	70	27.7
31 - 34	2	.5	25	10.3	17	6.7
35 - 39	--	--	4	1.6	7	2.8
40 & over	--	--	4	1.6	7	2.8
SUB-TOTAL	368	100.0	244	100.0	253	100.0
Not Given	--		2		--	
TOTAL	368		246		253	
Median	20		25		25	
Mean	21		26		26	
S. D.	2.5		5.0		4.8	
Minimum	18		19		19	
Maximum	31		51		44	
Chi-square	259.58*					

C. RACE

Race	FTIC N	FTIC %	AA TRANS N	AA TRANS %	OTHER TRANS N	OTHER TRANS %
Black	7	1.9	8	3.3	6	2.4
Asian	4	1.1	10	4.1	6	2.4
Hispanic	20	5.4	6	2.4	9	3.5
Other	337	91.6	222	90.2	232	91.7
TOTAL	368	100.0	246	100.0	253	100.0
Chi-square	10.31					

D. SEX

Sex	FTIC N	FTIC %	AA TRANS N	AA TRANS %	OTHER TRANS N	OTHER TRANS %
Male	346	94.0	235	95.5	248	98.0
Female	22	6.0	11	4.5	5	2.0
TOTAL	368	100.0	246	100.0	253	100.0
Chi-square	5.74					

* Significant at .05 level

PART IV - COMPARATIVE ANALYSIS BY TYPE (Cont'd)

E. DATE OF ENTRY

Year	FTIC N	FTIC %	AA TRANS N	AA TRANS %	OTHER TRANS N	OTHER TRANS %
1963	2	.5	--	--	1	.4
1964	1	.3	--	--	--	--
1965	4	1.1	--	--	--	--
1966	8	2.2	--	--	2	.8
1967	5	1.4	--	--	1	.4
1968	5	1.4	1	.4	5	2.0
1969	21	5.7	2	.8	9	3.5
1970	43	11.6	12	4.9	16	6.3
1971	50	13.6	25	10.2	27	10.7
1972	78	21.2	86	34.9	66	26.1
1973	130	35.3	87	35.4	88	34.8
1974	21	5.7	33	13.4	38	15.0
TOTAL	368	100.0	246	100.0	253	100.0

F. DATE STUDENT BECAME JR. *

Year	FTIC N	FTIC %	AA TRANS N	AA TRANS %	OTHER TRANS N	OTHER TRANS %
1963	--	--	--	--	1	.4
1964	--	--	--	--	1	.4
1965	--	--	--	--	1	.4
1966	1	.3	--	--	--	--
1967	3	1.0	--	--	1	.4
1968	--	--	1	.4	2	.8
1969	3	1.0	2	.8	7	3.0
1970	4	1.4	12	4.9	7	3.0
1971	14	4.7	27	11.0	19	8.0
1972	45	15.3	92	37.4	54	22.7
1973	48	16.3	83	33.7	69	29.0
1974	103	34.9	29	11.8	61	25.6
1975	57	19.3	--	--	11	4.6
1976	17	5.8	--	--	4	1.7
TOTAL	295	100.0	246	100.0	238	100.0

* Or Sr. for transfer students with more than 134 hours.

PART IV - COMPARATIVE ANALYSIS BY TYPE (Cont'd)

G. GPR IN UPPER LEVEL ENGINEERING COURSES

GPR	FTIC N	FTIC %	AA TRANS N	AA TRANS %	OTHER TRANS N	OTHER TRANS %
0.000 - 0.500	4	1.4	4	1.7	5	2.2
0.501 - 1.000	6	2.1	9	3.9	5	2.2
1.001 - 1.500	10	3.4	15	6.5	8	3.5
1.501 - 2.000	32	11.0	32	13.8	18	7.8
2.001 - 2.500	38	13.1	52	22.4	57	24.7
2.501 - 3.000	83	28.6	56	24.1	63	27.3
3.001 - 3.500	63	21.7	38	16.4	51	22.1
3.501 - 4.000	54	18.6	26	11.2	24	10.4
SUB-TOTAL	290	100.0	232	100.0	231	100.0
N/A 3/	78		14		22	
TOTAL	368		246		253	
Median	2.813		2.521		2.683	
Mean	2.763		2.503		2.623	
S. D.	.800		.052		.757	
Minimum	.000		.000		.000	
Maximum	4.000		4.000		4.000	

H. WITHDRAWAL RATIO 1/ IN UPPER LEVEL ENGINEERING COURSES

PERCENT	FTIC N	FTIC %	AA TRANS N	AA TRANS %	OTHER TRANS N	OTHER TRANS %
0	97	33.3	78	33.6	76	32.9
0.1 - 5.0	48	16.5	28	12.1	43	18.6
5.1 - 10.0	47	16.2	36	15.5	43	18.6
10.1 - 15.0	35	12.1	23	9.9	15	6.5
15.1 - 20.0	17	5.8	24	10.3	13	5.6
20.1 - 25.0	8	2.7	15	6.5	9	3.9
over 25.0	39	13.4	28	12.1	32	13.9
SUB-TOTAL	291	100.0	232	100.0	231	100.0
N/A 3/	77		14		22	
TOTAL	368		246		253	
All Students						
Median	5.1		6.5		4.7	
Mean	10.5		10.7		10.5	
S. D.	15.2		13.1		15.0	
Minimum	0.0		0.0		0.0	
Maximum	85.0		66.7		80.0	
Students using Withdrawal						
Median	10.3		12.4		8.8	
Mean	15.7		16.1		15.6	
S. D.	16.3		13.1		16.0	

I. FORGIVENESS RATIO 2/ IN UPPER LEVEL ENGINEERING COURSES

PERCENT	FTIC N	FTIC %	AA TRANS N	AA TRANS %	OTHER TRANS N	OTHER TRANS %
0	207	71.1	140	60.3	152	65.8
0.1 - 5.0	19	6.5	19	8.2	28	12.1
5.0 - 10.0	25	8.6	21	9.1	28	12.1
10.1 - 15.0	16	5.5	19	8.2	14	6.1
over 15.0	24	8.2	33	14.2	9	3.9
SUB-TOTAL	291	100.0	232	100.0	231	100.0
N/A 3/	77		14		22	
TOTAL	368		246		253	
All Students						
Median	0.0		0.0		0.0	
Mean	3.5		5.2		3.2	
S. D.	7.5		8.7		7.2	
Minimum	0.0		0.0		0.0	
Maximum	50.0		50.0		52.2	
Students using Forgiveness						
Median	9.6		11.1		6.8	
Mean	12.3		13.0		9.5	
S. D.	9.5		9.5		9.6	

TYPE	D 1/ GPR	Chi-square Withdrawal	Chi-square Forgiveness
FTIC/AA TRANS	.260*	9.9	8.6
FTIC/OTHER TRANS	.140	5.5	10.5
AA TRANS/OTHER TRANS	.120	10.5	17.8**

* Significant at .05 level
** Significant at .02 level
1/ Scheffe' comparison of means

1/ Ratio of hours withdrawn to hours attempted.
2/ Ratio of hours forgiven to hours attempted.
3/ Not applicable - Students did not take upper level engineering courses.

PART IV - COMPARATIVE ANALYSIS BY TYPE (Cont'd)

J. GPR AS JR. & SR.

GPR	FTIC N	FTIC %	AA TRANS N	AA TRANS %	OTHER TRANS N	OTHER TRANS %
0.000 - 0.500	1	.4	1	.4	1	.4
0.501 - 1.000	3	1.0	1	.4	1	.4
1.001 - 1.500	3	1.0	10	4.1	9	3.8
1.501 - 2.000	27	9.1	18	7.3	11	4.6
2.001 - 2.500	54	18.3	71	28.9	61	25.6
2.501 - 3.000	77	26.1	71	28.9	69	29.0
3.001 - 3.500	79	26.8	49	19.9	62	26.1
3.501 - 4.000	51	17.3	25	10.1	24	10.1
SUB-TOTAL	295	100.0	246	100.0	238	100.0
N/A 3/	73		--		15	
TOTAL	368		246		253	
Median	2.870		2.682		2.725	
Mean	2.840		2.648		2.722	
S. D.	.671		.624		.610	
Minimum	.472		.000		.000	
Maximum	4.000		4.000		4.000	

K. WITHDRAWAL RATIO 1/ IN COURSES TAKEN AS JR. & SR.

RATIO	FTIC N	FTIC %	AA TRANS N	AA TRANS %	OTHER TRANS N	OTHER TRANS %
0	80	27.1	50	20.3	59	24.8
0.1 - 5.0	68	23.1	46	18.7	49	20.6
5.1 - 10.0	65	22.0	53	21.5	50	21.0
10.1 - 15.0	36	12.2	29	11.8	34	14.3
15.1 - 20.0	17	5.8	28	11.4	16	6.7
20.1 - 25.0	8	2.7	14	5.7	10	4.2
over 25.0	21	7.1	26	10.6	20	8.4
SUB-TOTAL	295	100.0	246	100.0	238	100.0
N/A 3/	73		--		15	
TOTAL	368		246		253	
All Students						
Median	5.0		7.0		6.1	
Mean	7.8		11.1		9.1	
S. D.	9.3		12.6		10.8	
Minimum	0.0		0.0		0.0	
Maximum	63.6		69.2		60.0	
Students using Withdrawal						
Median	7.3		9.6		9.4	
Mean	10.7		13.8		12.1	
S. D.	9.4		12.7		10.9	

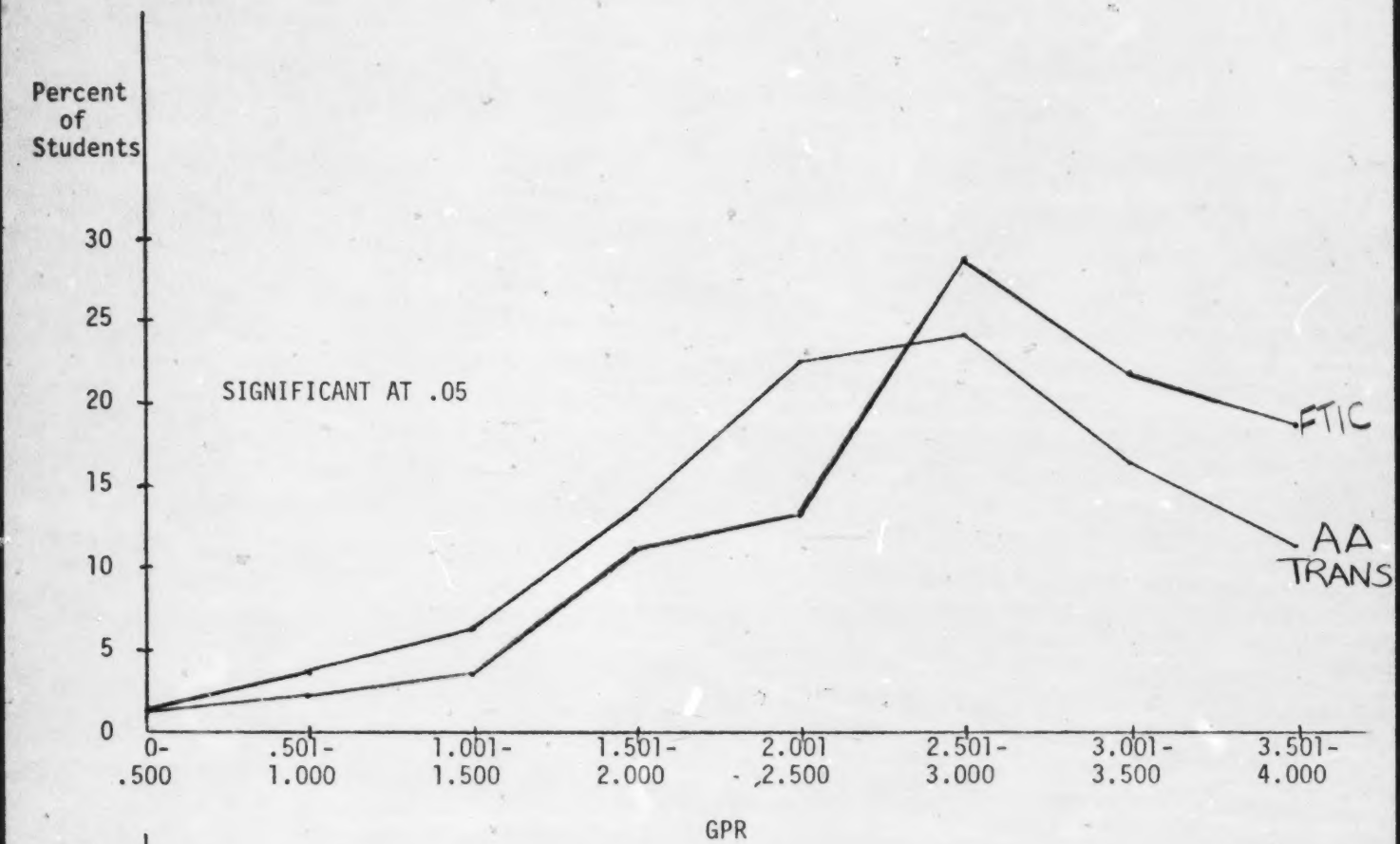
L. FORGIVENESS RATIO 2/ IN COURSES TAKEN AS JR. & SR.

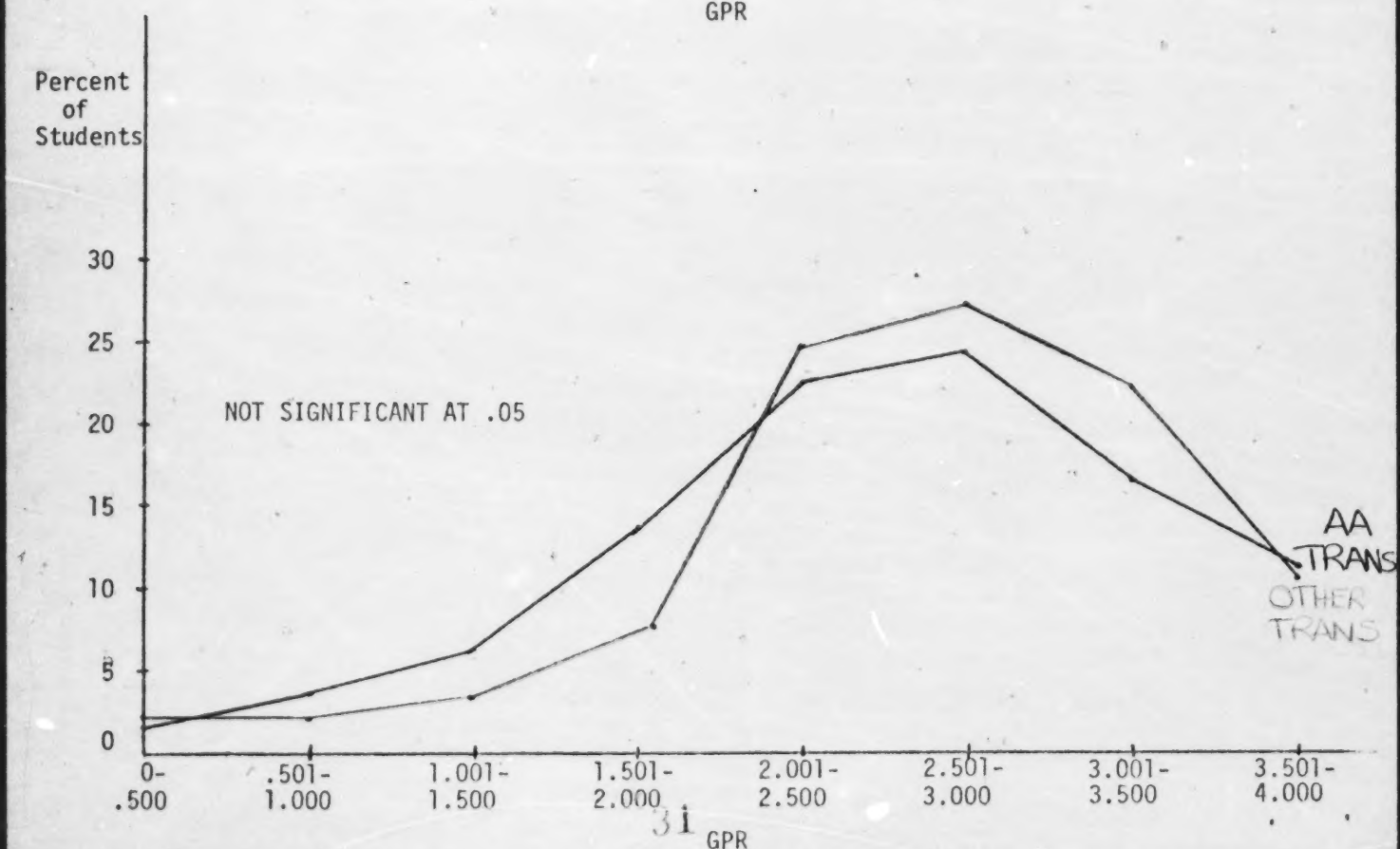
PERCENT	FTIC N	FTIC %	AA TRANS N	AA TRANS %	OTHER TRANS N	OTHER TRANS %
0	205	69.5	127	51.6	148	62.2
0.1 - 5.0	40	13.6	41	15.7	38	15.0
5.1 - 10.0	23	7.8	38	15.5	30	12.6
10.1 - 15.0	19	6.4	20	8.1	16	6.7
over 15.0	8	2.7	20	8.1	6	2.5
SUB-TOTAL	295	100.0	246	100.0	238	100.0
N/A 3/	73		--		15	
TOTAL	368		246		253	
All Students						
Median	0.0		0.0		0.0	
Mean	2.3		4.4		2.7	
S. D.	4.4		6.0		4.6	
Minimum	0.0		0.0		0.0	
Maximum	22.1		27.3		29.5	
Students using Forgiveness						
Median	6.1		8.1		6.4	
Mean	7.7		8.9		7.2	
S. D.	4.8		5.8		4.8	

TYPE	D 1/ GPR	Chi-square Withdrawal	Chi-square Forgiveness
FTIC/AA TRANS	.192*	14.4	23.6**
FTIC/OTHER TRANS	.136	2.5	4.7
AA TRANS/OTHER TRANS	.074	6.4	10.9

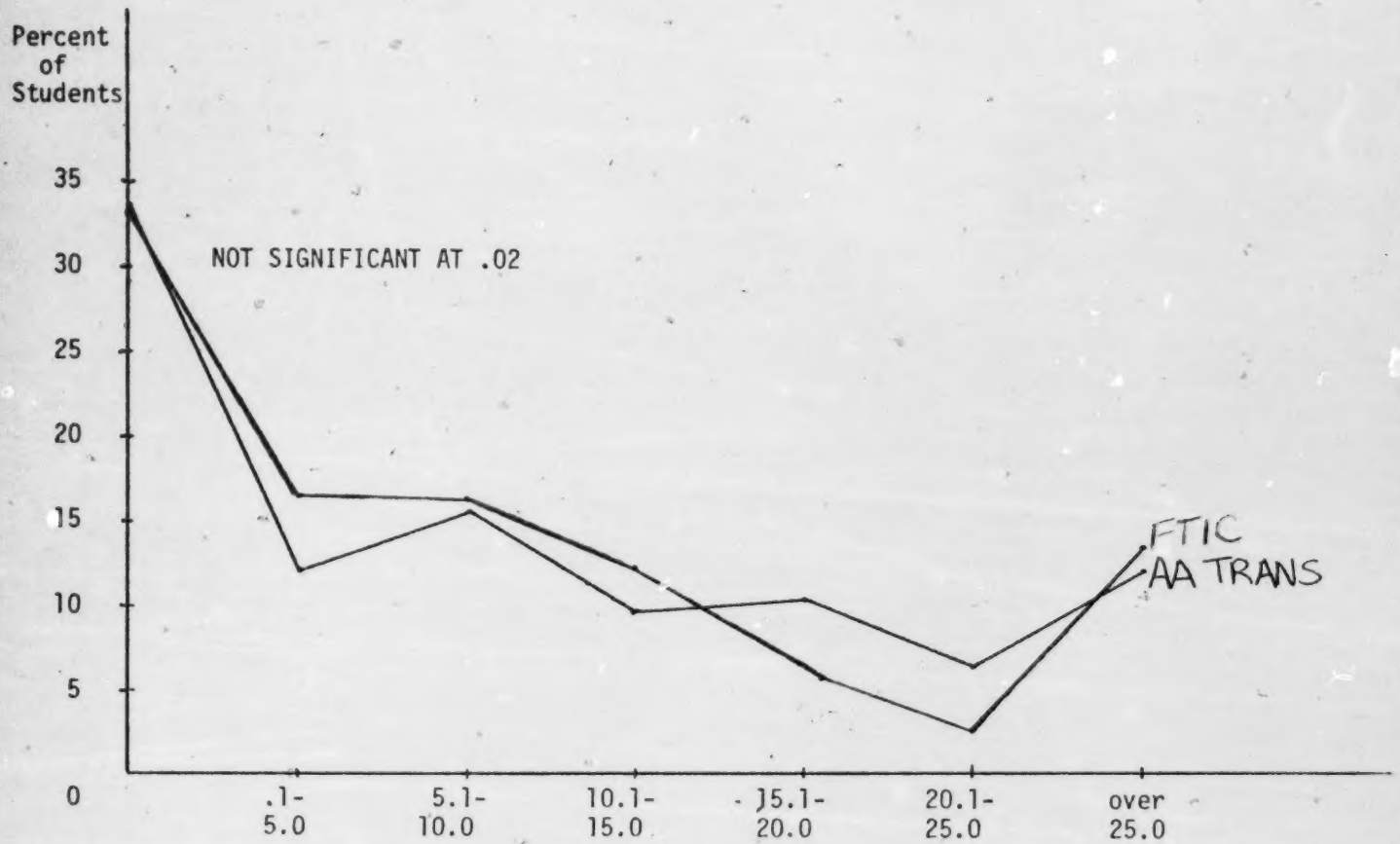
* Significant at .05 level
** Significant at .02 level
1/ Scheffe' comparison of means

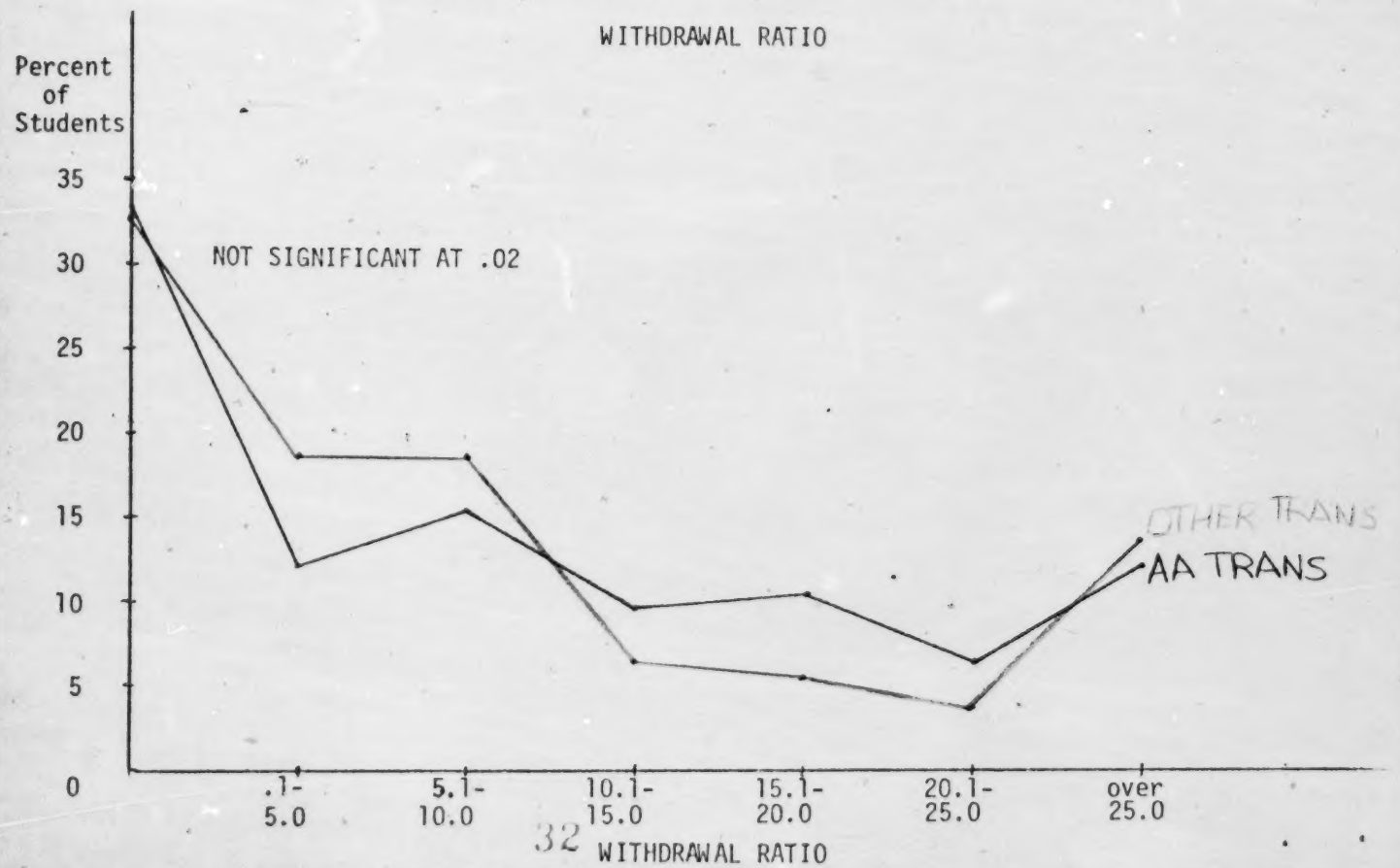
1/ Ratio of hours withdrawn to hours attempted
2/ Ratio of hours forgiven to hours attempted
3/ Not applicable - Students did not take courses as Jr. & Sr.

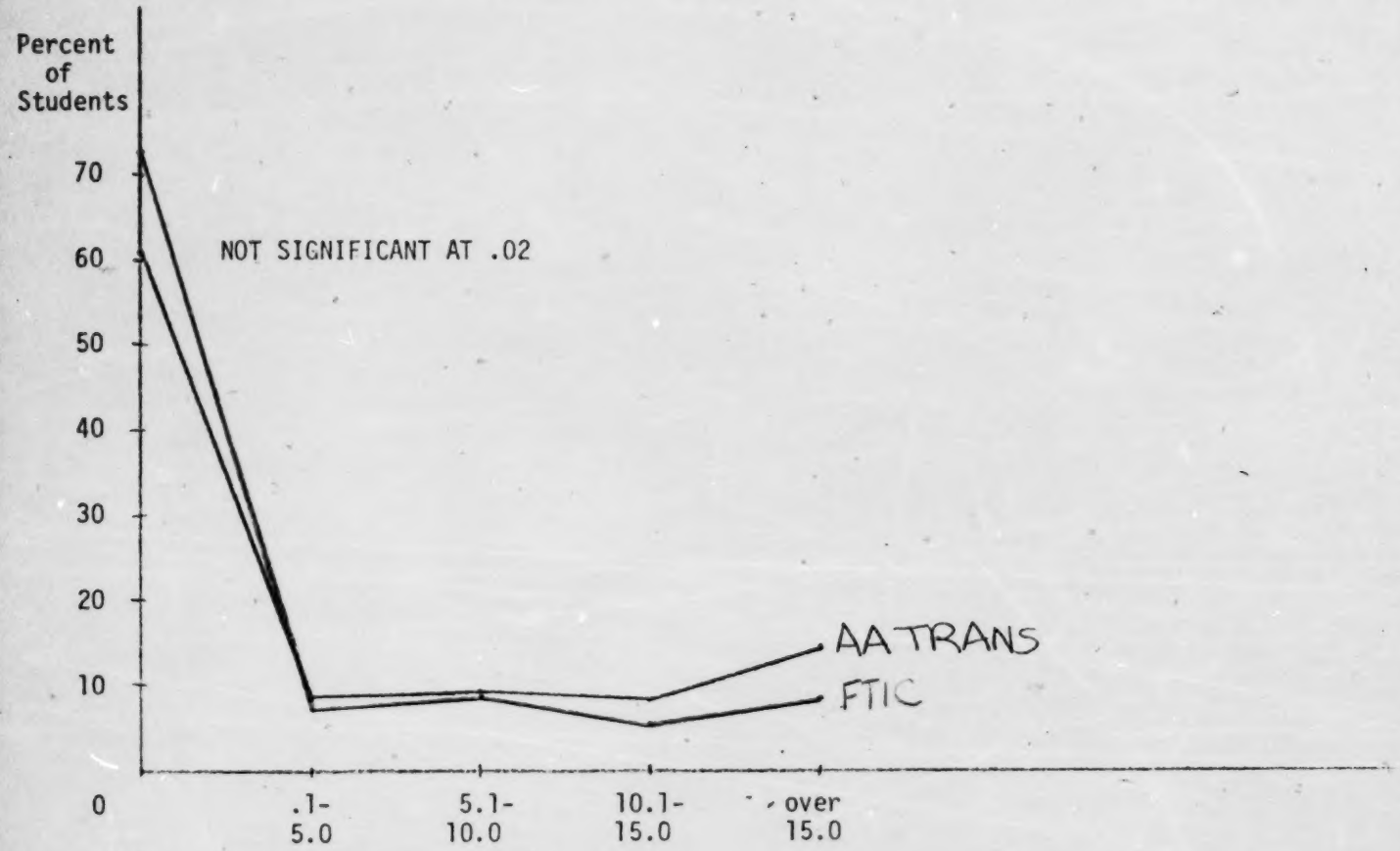

Percent of Students
30
25
20
15
10
5
0
SIGNIFICANT AT .05
FTIC
AA TRANS
0-.500
.501-1.000
1.001-1.500
1.501-2.000
2.001-2.500
2.501-3.000
3.001-3.500
3.501-4.000
GPR

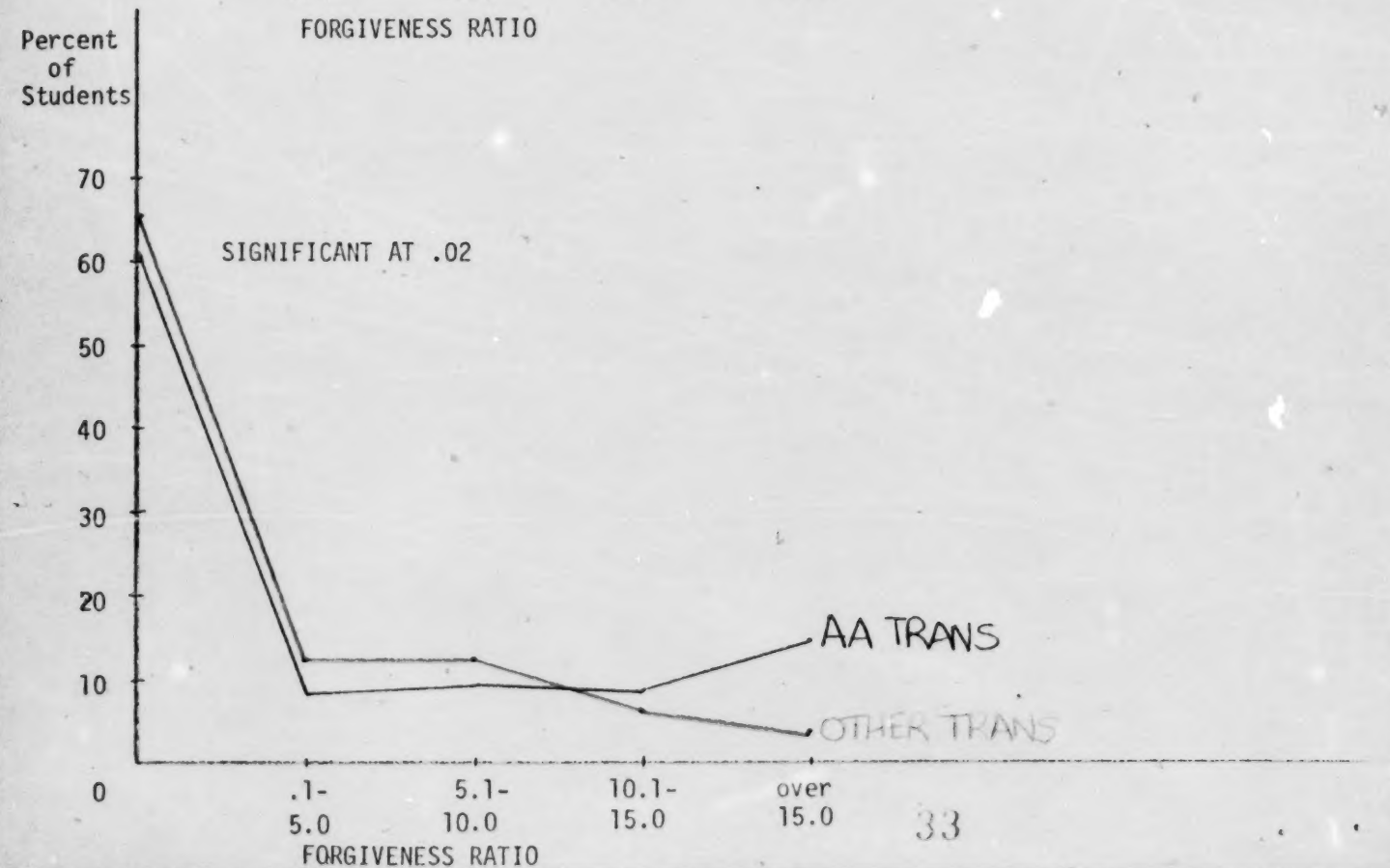

Percent of Students
30
25
20
15
10
5
0
NOT SIGNIFICANT AT .05
AA TRANS
OTHER TRANS
0-.500
.501-1.000
1.001-1.500
1.501-2.000
2.001-2.500
2.501-3.000
3.001-3.500
3.501-4.000
GPR

WITHDRAWAL RATIO IN UPPER LEVEL ENGINEERING COURSES

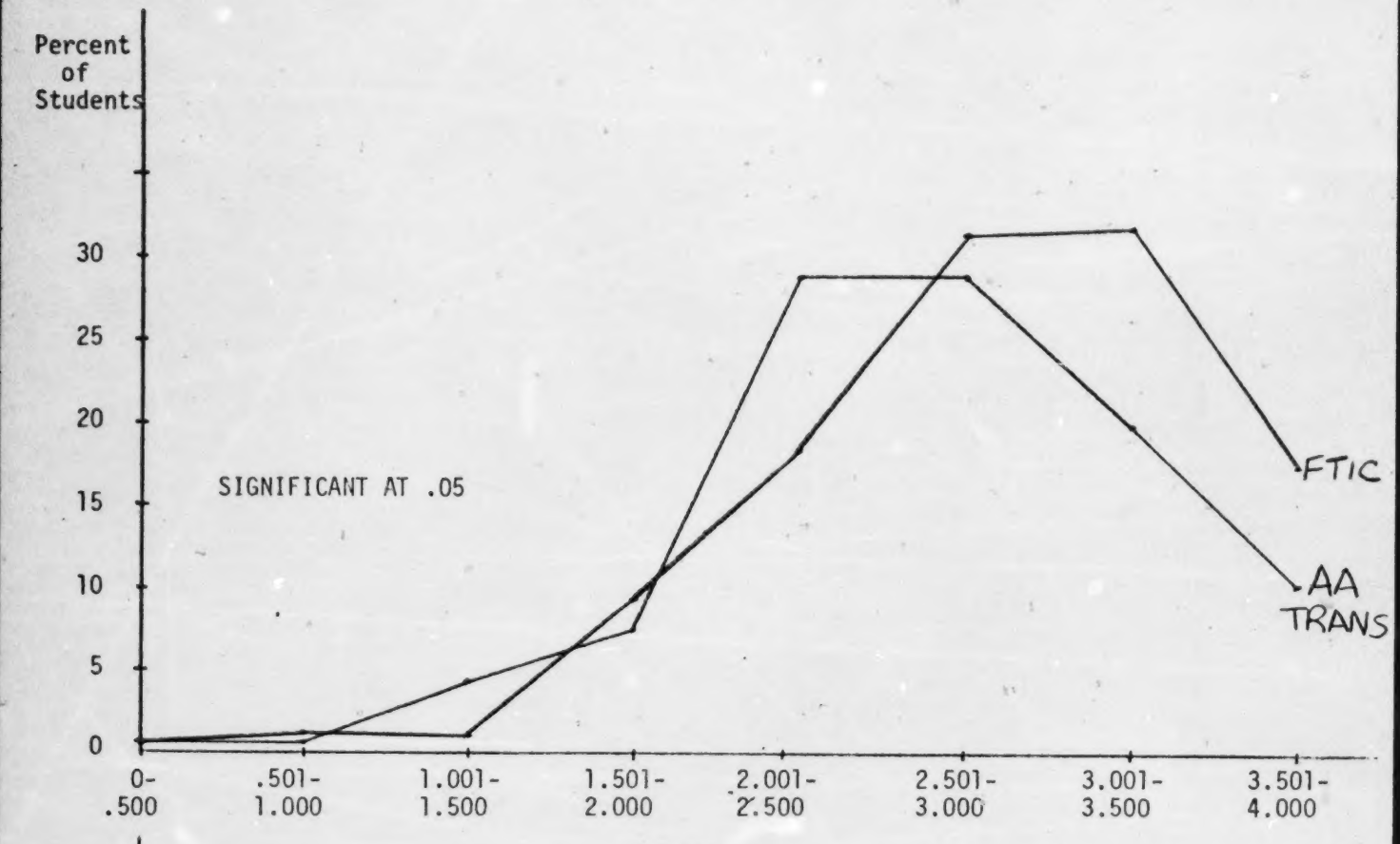


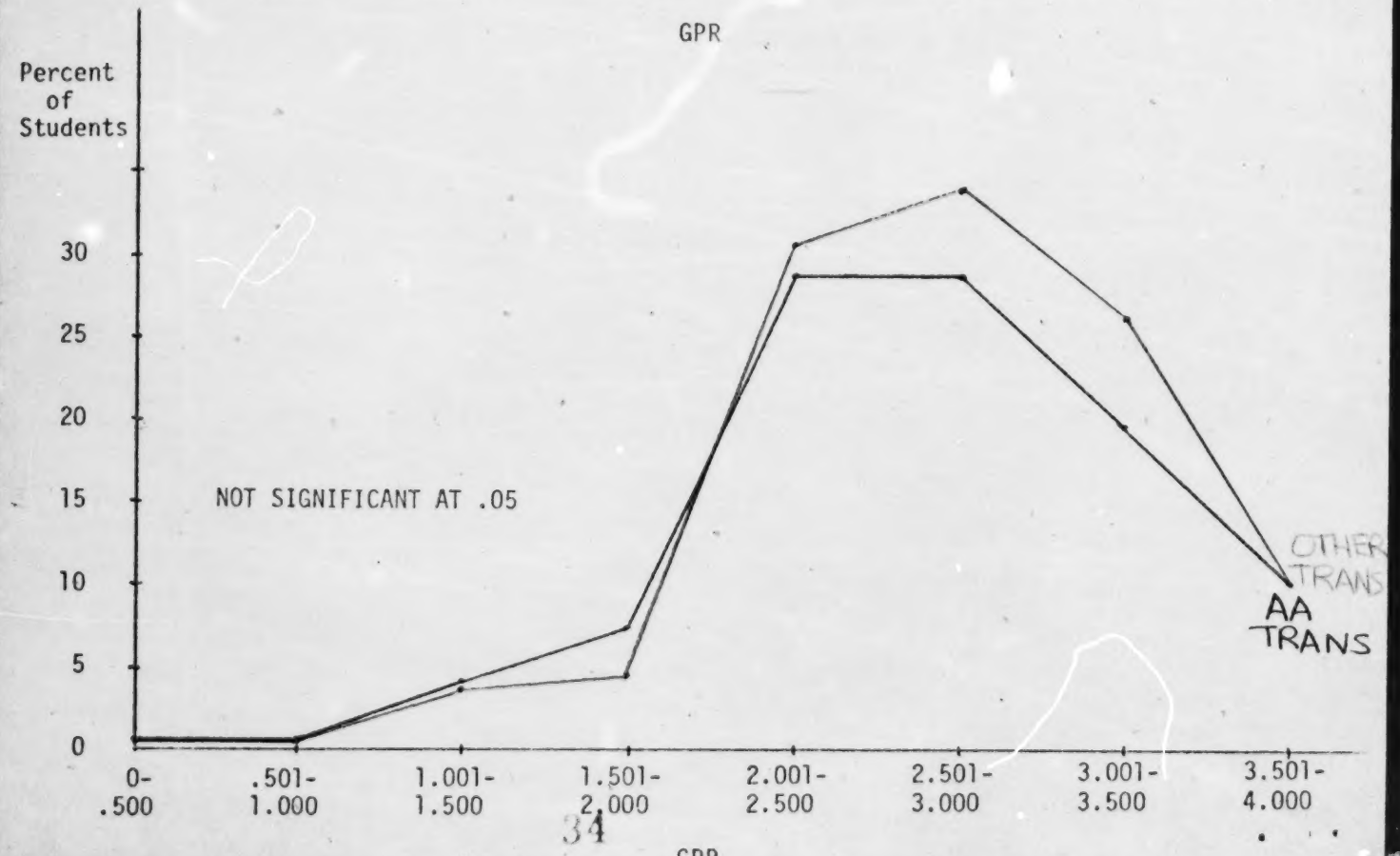



Percent of Students
70
60
50
40
30
20
10
0
NOT SIGNIFICANT AT .02
AA TRANS
FTIC
.1-5.0
5.1-10.0
10.1-15.0
over 15.0
FORGIVENESS RATIO

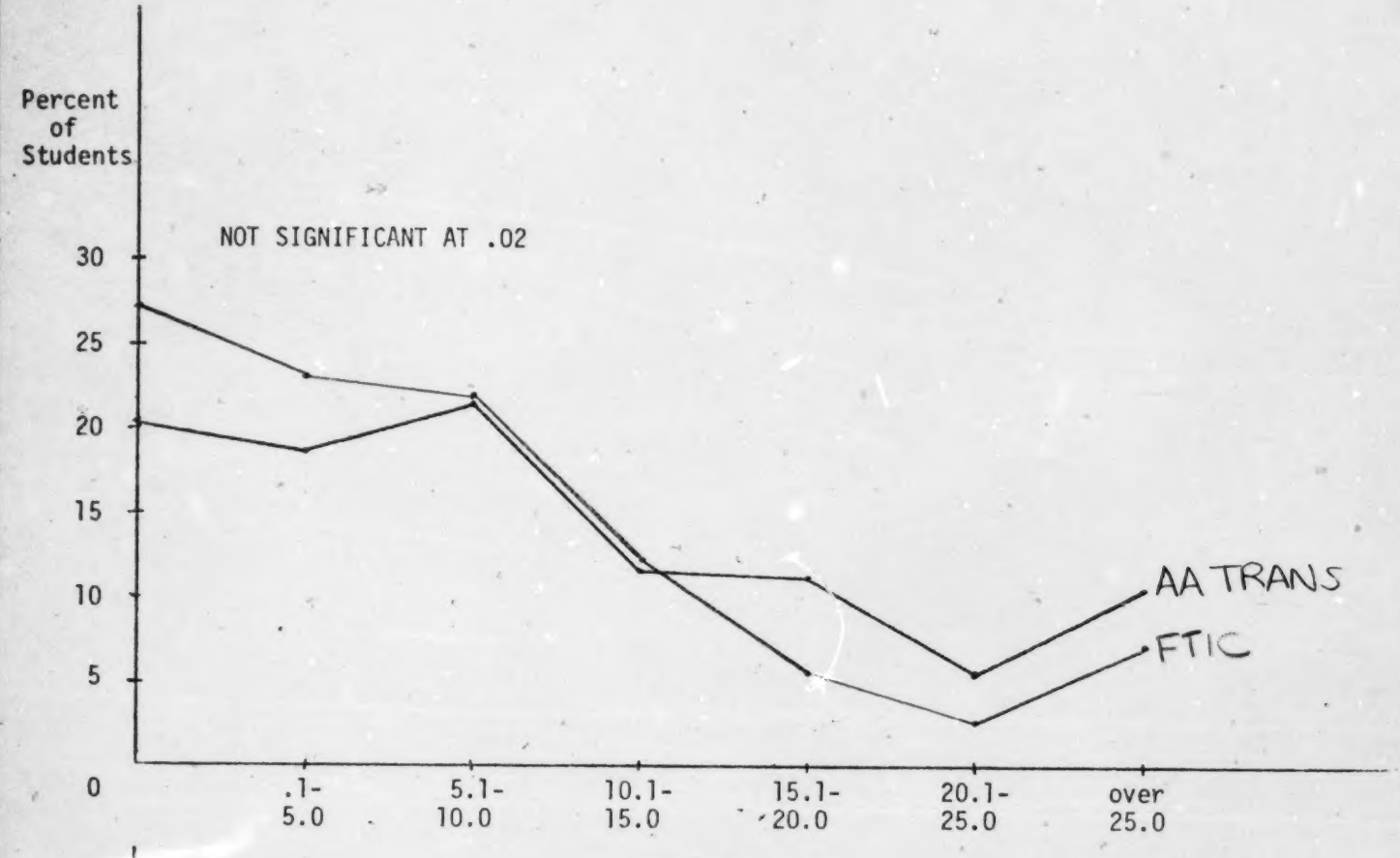

Percent of Students
70
60
50
40
30
20
10
0
SIGNIFICANT AT .02
AA TRANS
OTHER TRANS
.1-5.0
5.1-10.0
10.1-15.0
over 15.0
FORGIVENESS RATIO

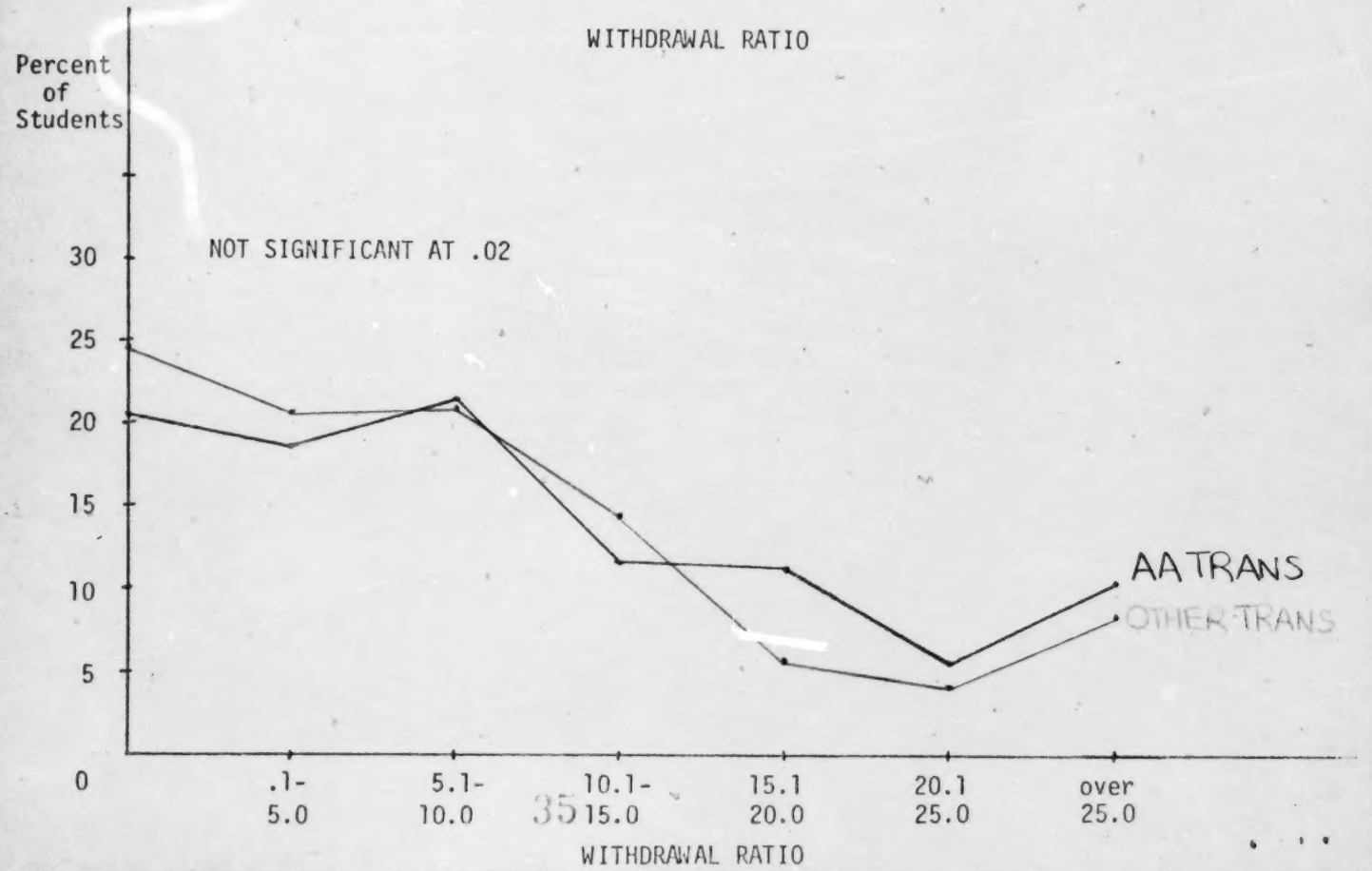
GPR AS JUNIOR & SENIOR





WITHDRAWAL RATIO IN COURSES TAKEN AS JUNIOR & SENIOR





FORGIVENESS RATIO IN COURSES TAKEN AS JUNIOR & SENIOR